even intentionally, by natives for adulteration. The chemical and physical characters of the latex and the methods of coagulation have received attention by Dr. Christy in Uganda, and his chapters on these subjects provide much interesting matter. The book is, however, one which must necessarily appeal to a limited section owing to the relative unimportance of the species dealt with as sources of rubber. It is true that Funtumia has supplied large quantities of Lagos-silk rubber in the past, and will continue to do so for many years to come. Nevertheless, it is a species which does not lend itself to cultivation; wherever it has been tried—in Ceylon, Malay, Samoa, New Guinea, &c.—its growth has been so slow and the yields so small that planters have abandoned all hopes of ever cultivating the tree profitably.

(2) This a book which deals with a very special side of the rubber industry, and is mainly of interest to planters in the East, and to students of mycology elsewhere.

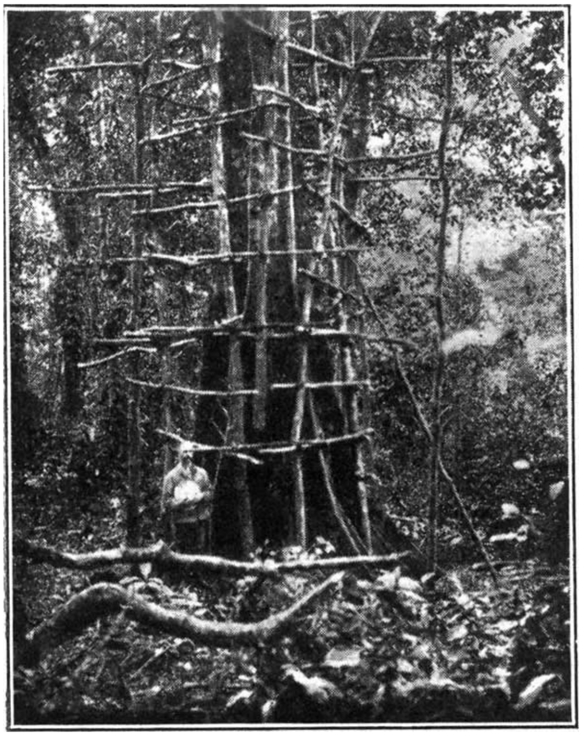

FIG. 2.—High-tapping Funtumia (Mabira Forest). From "The Whole Art of Rubber Growing."

After giving a general introductory statement on the structure of *Hevea brasiliensis,* its latex and rubber, and the tapping systems employed on plantations, the author comes to the special part for which he is qualified to deal, viz., plant sanitation from the mycological point of view. Leaf diseases—*Helminthosporium heveae and Gloeosporium heveae*—are dealt with, and the result of an examination of fallen leaves is described, it being shown that conspicuous defoliation was not due to these diseases. Among root diseases, the author pays particular attention to *Fomes semitostus,* which is now reported from most estates in Ceylon, Malaya, Sumatra, Java, and even Africa; to the Brown root disease—*Hymenochaete noxia* and to *Sphaerostilbe repens*, and he deals also with numerous miscellaneous fungi observed by himself and others on the roots of this particular tree.

Stem diseases are dealt with in a separate chapter. *Phytophthora Faberi* is described as a parasitic fungus affecting the stem and fruit of *Hevea brasiliensis*; it has also been associated with cocoa, with which rubber trees are often interplanted. Pink disease—*Corticium salmonicolor,* B. and Br.—formerly extensively known in Java as *Corticium javanicium,* Zimm., is also described. This disease appears to originate generally in the fork of the tree or where several branches arise close together from the main stem; it has caused considerable damage, especially in Java and Malaya. A new stem canker, *Coniothyrium sp.,* is reported to have made its appearance on a Ceylon estate in 1909; this apparently appears on young green shoots, the first sign of its appearance being the production of hard, yellowish patches due to the development of a corky layer under the epidermis. Stem diseases of seedlings and the sterilisation of nurseries also receive attention.

Some abnormalities in Hevea in the form of twisted seedlings, nodules, and twisted stems (fasciation) are well illustrated, and should prove of interest to teratological students.

Much of the information has already been published in Ceylon, but this should not seriously detract from its value. References to literature on each subject are freely given, and in this way the reader is enabled to secure further detail if he desires to do so.

It is to be regretted that this book deals only with diseases due to fungi and bacteria. The book would have been much more useful to planters and to others in Europe had it taken into consideration the numerous animal pests which at the present time are a source of great anxiety to all cultivators of rubber trees. It is the only book of its kind, and should find a place in the library of all who wish to maintain an interest in tropical agriculture.

(3) Mr. W. Wicherley's booklet covers a series of general problems connected with *Hevea brasiliensis, Manihot glaziovii, Ficus elastica, Castilloa elastica, Funtumia elastica,* and three of the new Manihots. The majority of the essays have already appeared in the London Press. The writer acknowledges his indebtedness to the officials of the Ceylon Botanic Gardens, and pays a tribute to past and present officers for the work they have done in connection with this cultivation.

The statistics given of planted acreages and probable future yields (p. 144) are, in our opinion, calculated to give a wrong impression; the acreages now under rubber are, and the future annual crops will be, much larger than those suggested by the author.

There are some interesting illustrations, especially those showing high tapping of Funtumia trees in Uganda, and of methods of tapping adopted on trees of *Manihot dichotoma.* The book deals almost exclusively with matters relating to plantation subjects, and will be found useful by the general reader who is anxious to acquire a general knowledge of this section of the industry.

## THE COAST OF NORTH DEVON.[1]

THIS is a book which should be in the hands of all who are interested in the scenery of the British Isles, and especially of those who intend to visit any of the holiday resorts on the northern or western coasts of Devon. It is not an ordinary guide-book, and it is not a geological treatise, but a description and explanation of some of the most picturesque and interesting coast scenery to be found in England or Wales.

---

[1] "The Coast Scenery of North Devon." Being an Account of the Geological Features of the Coast-line Extending from Porlock in Somerset to Boscastle in North Cornwall. By E. A. Newell Arber. Pp. xxiv+261+2 sketch maps. (London: J. N. Dent and Sons, Ltd., 1911.) Price 10s. 6d. net.

It includes all information necessary as to the best means of seeing the different parts of the coast-line, and all the geological information that is requisite for understanding the structure of the country, the flexuring of the rocks, and the features which the cliffs present. Mr. Arber points out that one of the special features of this coast is the number of coastal waterfalls. "By this term," he says, "we imply waterfalls cut by streams in their passage over the sea-cut cliffs to the beach. Several of these coastal falls are of considerable height, and form striking landmarks on the coast. Their features, however, are so varied that no two of them are exactly alike in all respects. They show all stages in the evolution of a waterfall from its birth to its senile period of old age and decay."

Mr. Arber divides his subject, that is to say, the coast-line, into six districts, beginning with the most easterly, near Porlock, in Somerset, and ending with the most southerly, near Boscastle, in Cornwall. He mentions the best headquarters for each, and then describes the rocks seen in the cliffs, the ridges and headlands, the streams, and the waterfalls, all of which are illustrated by excellent photographs, fifty-nine in number, and two of these, reproduced in Figs. 1 and 2, will show the reader what kind of scenery is to be found in the area described.

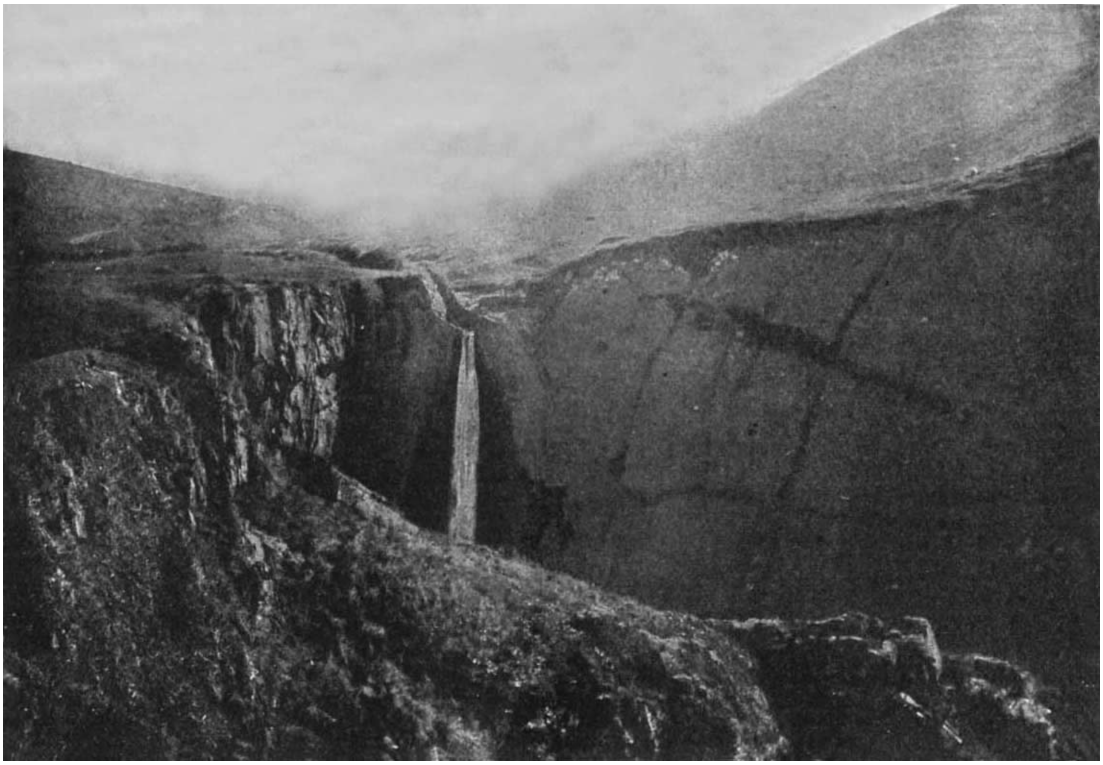

FIG. 1.—The valley of Milford Water and the head of the First Fall, from the cliffs above Speke's Mill Mouth, looking east (Hartland District). From "The Coast Scenery of North Devon."

The chief peculiarity of this area is that the two main watersheds are, roughly, parallel to the coast, and seldom more than three miles away from it. We have consequently the curious arrangement of a number of streams rising near the coast and flowing inland, and of a still larger number of short streams flowing from the watersheds to the cliff-line, over which most of them fall in one or more cascades. The explanation of this arrangement is that the sea has invaded and destroyed the country which originally lay outside the main watersheds, and is now advancing on the actual watershed ridges. This is illustrated by a clear map of the whole drainage system of the area.

Mr. Arber writes, on p. 20, as if there were only one watershed, and it is true that there are secondary watersheds which nearly unite them, but, as a matter of fact, there are two main watersheds separated by the Valley of the Taw, and it is doubtful if they were ever united. The Exmoor ridge may have been prolonged indefinitely westward, while the Hartland watershed must always have been truncated by the continuation of the Taw valley along the floor of Barnstaple Bay, before the recent depression or subsidence enabled the sea to advance so far over the western land.

This comparatively recent subsidence is a very important factor in the explanation of the present peculiar drainage system, and of the features presented by the coast-line, but Mr. Arber has not laid sufficient emphasis upon it. He refers to it in several places, but he also refers to what he terms the "recent elevation" of some parts of the coast, leaving the reader to infer that the one movement was as recent as the other. He should have made it clear that the upheaval which lifted the "Raised Beaches" to their present position, or rather to a still higher level, was antecedent to the subsidence which is indicated by the drowned valleys and the submerged forests. When the book reaches a second edition Mr. Arber will do well to add a short account of the Pleistocene history of the country to his introductory chapter.

Of the coast near Hartland Point Mr. Arber writes that it includes some of the wildest and grandest cliff scenery to be met with in the whole of Devon, and that as regards its coastal waterfalls he believes it to be quite unique so far as Britain is concerned. One of these waterfalls is that of Milford Water, and is shown in Fig. 1. This, moreover, is only the first fall of the stream from a level of about 160 feet above the sea; below it is a cañon, in which are three smaller falls before the stream reaches the beach. Fig. 2 is a side view of the same fall from below, showing the synclinal flexure of the rocks at this point, and the manner in which the stream turns at right angles along the syncline. After going for 132 yards to the south it again turns west across the strike of the rocks, a curious and interesting instance of the relation of stream channels to rock structure.

Part ii. of the book deals with some features of special geological interest, these being the marine erosion of folded rocks, sea-dissected valleys, and the evolution of coastal waterfalls. The author points out that the usual text-book explanation of bays and promontories along a sea-coast is not always the true one. They do not always coincide with the outcrops of softer and harder rocks. Some of the irregularities of the Devon coast seem to be due to the influence of previously existing physiographic features, the bays coinciding with the sites of valleys and the promontories with the dividing watershed ridges. Others are due to the influence of the flexures, and he finds that the anticlines are more stable under the action of sea erosion than are the synclines, while on land under the action of subaërial agencies the reverse is the case.

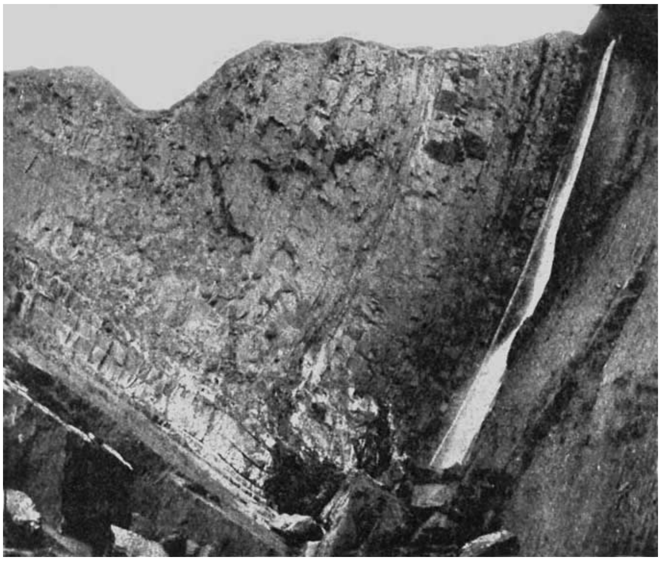

FIG. 2.—The First Fall of Milford Water and the synclinal fold, looking north. From "The Coast Scenery of North Devon."

Mr. Arber has certainly succeeded in showing how many points of interest there are along this piece of coast-line, both for the geological student and for the intelligent tourist.

A. J. J.-B.

## NOTES.

THE present summer is establishing a record for its high temperatures, and in many places for its persistent drought. At Greenwich the mean temperature for July was 68·3°, which is 4·6° above the average for the past sixty years. The mean of the day temperatures was 81°, and of the night temperatures 55·5°. There were nineteen days during the month with the shade temperature above 80°, and three days above 90°. This is the greatest number of days in July above 80° since 1868, and the third highest number since 1841. The highest shade temperature during the month at Greenwich was 95·6° on July 22, and the only two instances of a higher temperature at any period of the year are 97·1° on July 15, 1881, and 96·6° on July 22, 1868. There were seven days after July 20 with the thermometer in the sun's rays about 150°, and on July 22 the black bulb thermometer registered 161°. The duration of sunshine for the month was 331 hours, which is nearly 100 hours more than the average. No rain was measured until July 24, the period of drought being the longest in July since 1887. The aggregate rainfall for the month was 0·26 inch, which fell on three days. This is the driest July since 1864, and there is no other July so dry since 1841. At Bath, July was absolutely rainless. The reports received by the Meteorological Office give the following additional high temperatures:—On July 21 the thermometer registered 90° both at Oxford and Margate, on July 22 94° at Margate, on July 29 93° at Bath and 91° at Oxford. The type of weather was anticyclonic almost continuously throughout the month, and the region of high barometer readings extended over a large part of western Europe, where exceptionally high temperatures occurred almost throughout the month. At Rochefort the thermometer registered 93° on July 6, at Lorient 95° on July 7, 97° on July 8, and 99° on July 9. On July 14 the temperature at Rochefort was 100°, and at Stockholm 95°. Paris had a temperature of 96° on July 22 and 23, Frankfurt 100° on July 23. From July 24 to 29 several stations in France and Belgium had temperatures from 95° to 98°. Some exceptionally severe thunderstorms occurred during the month; on July 28 1·1 inches of rain fell in fifteen minutes at South Kensington, and on July 29 2·14 inches fell in 2½ hours at Kilkenny.

FOR the moment the remarkable archæological discoveries in Corfu have thrown other work in the eastern Ægean into the shade. But in various parts of this area, in the Greek mainland and islands, much progress has been made, the results of which are described in an interesting article in *The Times* of July 31. The Greek Archæological Society has restored the Propylæa on the Athenian Acropolis; repairs have been carried out at Mycenæ; and the museum at Olympia has been converted into a safe receptacle for its treasures. The French Mission at Delos has unearthed images of Egyptian and Syrian gods which illustrate the adoption of foreign cults into the religion of Greece; and some progress has been made at the island of Levkas (Santa Maura), which Dr. Dörpfeld believes to be the Homeric Ithaca. The British School has been at work on the Menelaion, the tomb of Menelaus and Helen at Sparta. Phylakopi, in Melos, the seat of an early trade in weapons of obsidian, has yielded some good vases imported from Crete. An appeal is now made for help towards the explorations in Macedonia, conducted by Messrs. A. J. B. Wace and M. Thompson, where important results in the examination of prehistoric, classical, Byzantine, and mediæval antiquities may be confidently expected.

PROF. CZERMAK, of the Brünn High School, who died on July 11 at the age of seventy-seven years, left, says the *Revue Scientifique*, a million crowns to the Vienna Academy of Sciences.

IT is announced in *The Times* that M. Ernest Mercadier, formerly director of studies at the École Polytechnique, died on July 27 in his seventy-sixth year. M. Mercadier entered the French telegraph service in 1859, and held the